I CLAIM:

1. An apparatus for the application of coatings in a vacuum, comprising

at least one filtered arc source comprising at least one cathode contained within a cathode chamber,

at least one anode associated with the cathode for generating an arc discharge,

a plasma duct in communication with the cathode chamber and with a coating chamber containing a substrate holder for mounting substrates to be coated, the substrate holder being positioned off of an optical axis of the cathode,

at least one deflecting electrode electrically insulated from the plasma duct and disposed adjacent to one or more walls of the plasma duct that are not occupied by the cathode,

at least one deflecting conductor disposed adjacent to the plasma source and the plasma duct, and

at least one repelling electrode connected to the positive pole of a current source and disposed along the plasma duct at a position between the deflecting electrode and the coating chamber.

2. The apparatus of claim 1 wherein the repelling electrode is disposed near a position where a tangential component of a magnetic field within the plasma duct is strongest.

3. The apparatus of claim 2 comprising at least one focusing conductor positioned adjacent to the plasma duct between the deflecting conductor and the coating chamber for generating a focusing magnetic field which focuses plasma entering the coating chamber.

4. The apparatus of claim 3 wherein the deflecting magnetic field and the focusing magnetic field overlap.

5. The apparatus of claim 4 wherein the repelling electrode is disposed near a position where tangential components of the magnetic fields within the plasma duct are strongest.

6. The apparatus of claim 5 comprising a focusing electrode surrounding the repelling electrode within the plasma duct.

7. The apparatus of claim 5 in which the deflecting conductor and the focusing conductor each comprise a linear conductor extending along substantially the entire plasma duct.

8. The apparatus of claim 1 wherein the deflecting electrode comprises a generally planar conductive plate.

9. The apparatus of claim 8 wherein the deflecting electrode comprises a plurality of baffles.

10. The apparatus of claim 8 wherein the conductive plate comprises a portion substantially perpendicular to the optical axis of the plasma source.

11. The apparatus of claim 2 wherein the repelling electrode comprises a generally planar conductive plate.

12. The apparatus of claim 11 wherein the repelling electrode comprises a plurality of baffles.

13. The apparatus of claim 10 wherein the conductive plate comprises a portion substantially parallel to the optical axis of the plasma source.

14. The apparatus of claim 12 wherein a wall of the plasma duct near the conductive plate is in communication with a vacuum pumping system.

15. The apparatus of claim 14 comprising a mesh shroud disposed about a substantial portion of the deflecting electrode, such that applying a negative potential to the shroud increases metal ion bombardment of the deflecting electrode.

16. The apparatus of claim 5 comprising a cathode source contained within a cathode chamber disposed on each side of the conductive plate.

17. The apparatus of claim 5 in which the repelling electrode is aligned with the wall of the plasma duct adjacent to the coating chamber.

18. A method of coating an article in a coating apparatus comprising a plurality of substantially opposed cathode chambers each supporting a cathodic arc source and being disposed along an elongated plasma duct in communication with the cathode chambers, at least one anode associated with each cathodic arc source, a plurality of magnetic isolating coils each disposed transversely relative to the plasma duct between cathode chamber pairs, and a coating chamber in communication with an end of the plasma duct, the method comprising the steps of:

a. generating an arc between the cathodic arc source and its associated anode to create a plasma of cathodic evaporate, and

b. selectively activating the isolating coils to confine the plasma within a cell formed between isolating coils for a selected interval.

19. The method of claim 18 in which the isolating coils are activated in sequence, to raster the magnetic fields along the plasma duct.

20. An apparatus for the application of coatings in a vacuum, comprising

at least one filtered arc source comprising at least one cathode contained within a cathode chamber,

at least one anode associated with the cathode for generating an arc discharge,

at least one auxiliary anode disposed downstream of the plasma source for generating an auxiliary arc discharge

a plasma duct in communication with the cathode chamber and with a coating chamber containing a substrate holder for mounting substrates to be coated, the substrate holder being positioned off of an optical axis of the cathode,

at least one deflecting electrode electrically insulated from the plasma duct and disposed adjacent to one or more walls of the plasma duct that are not occupied by the cathode,

at least one deflecting conductor disposed adjacent to the plasma source and the plasma duct, and

at least one metal vapor plasma source disposed opposite to substrate holder, comprising crucible containing material to be evaporated, the crucible being shielded from a surrounding plasma environment.